

# CLAIMS

What is claimed is:

1. A buffing head for reconditioning a work surface of an optical disc comprising:

a rotary element for rotating said optical disc at a first speed;

a buffing element configured to contact said work surface so that rotation of said disc enables corresponding movement of said buffing element; and

a restrictor in communication with said buffing element for restricting said buffing element such that said buffing element moves at a second speed to recondition said work surface, said second speed being slower than said first speed.

2. A buffing head as claimed in claim 1 wherein said rotary element comprises a stop for holding a center section of said optical disc with said work surface of said disc facing downward to contact said buffing element.

3. A buffing head as claimed in claim 1 wherein said buffing element comprises:

an axle; and

a roller mounted on said axle, said roller rotating about said axle in response to said rotation of said optical disc.

4. A buffing head as claimed in claim 1 further comprising a well surrounding said buffing element, said well containing a fluid.

5. A buffing head as claimed in claim 4 wherein movement of said buffing element causes said buffing element to be immersed into said fluid and to be returned into contact with said work surface.

6. A buffing head as claimed in claim 4 further comprising a cover engaged with said well, said cover having an opening, and a portion of said buffing element extending through said opening.

7. A buffing head as claimed in claim 6 wherein said cover includes a guide for directing an escaped amount of said fluid back into said well.

8. A buffing head as claimed in claim 6 wherein said buffing head is selectively exposable through said opening.

9. A buffing head as claimed in claim 1 further comprising a cover concealing said buffing element, said cover having an opening, and said buffing element being selectively exposable through said opening.

10. A buffing head as claimed in claim 1 wherein said buffing element is a first buffing element, said restrictor is a first restrictor, and said buffing head further comprises:

a second buffing element configured to contact said work surface so that rotation of said disc enables corresponding movement of said second buffing element; and

a second restrictor in communication with said second buffing element for restricting said second buffing element such that said second buffing element moves at a third speed to recondition said work surface, said third speed being slower than said first speed.

11. A buffing head as claimed in claim 10 further comprising:

a first well surrounding said first buffing element, said first well containing a first fluid, and movement of said first buffing element causes said first buffing element to be immersed into said first fluid and to be returned into contact with said work surface; and

a second well surrounding said second buffing element, said second containing a second fluid, and movement of said second buffing element causes said second buffing element to be immersed into said second fluid and to be returned into contact with said work surface.

12. A buffing head as claimed in claim 10 wherein:

said first buffing element comprises a first abrasive surface for reconditioning said optical disc; and

said second buffing element comprises a second abrasive surface for reconditioning said optical disc, said second abrasive surface being finer than said first abrasive surface.

13. A buffing head as claimed in claim 10 further comprising a shaft, each of said first and second buffing elements being coupled to and extending radially from a working end of said shaft.

14. A buffing head as claimed in claim 13 wherein said shaft selectively rotates to position one of said first and second buffing elements in contact with said work surface of said optical disc.

15. A buffing head as claimed in claim 10 further comprising:

a first shaft, said first buffing element being coupled to and extending radially from a first working end of said first shaft; and

a second shaft, said second buffing element being coupled to and extending radially from a second working end of said second shaft.

16. A buffing head as claimed in claim 15 wherein each of said first and second shafts selectively rotate to position respective ones of said first and second buffing elements in contact with said work surface of said optical disc.

17. A buffing head as claimed in claim 15 wherein both of said first and second buffing elements are configured for concurrent contact with said work surface.

18. A buffing head as claimed in claim 1 wherein said buffing head enables a line-on-flat contact geometry between said buffing element and said optical disc.

19. A buffing head as claimed in claim 1 further comprising a platen for retaining optical disc in fixed relation with said rotary element.

20. A buffing head as claimed in claim 19 wherein said platen comprises:

a platen surface having a central opening through which a fluid is drawn when rotary element rotates said optical disc; and

radially extending ribs projecting from a disc facing side of said platen surface, said ribs being configured to contact said optical disc, and said fluid being drawn across a non-working surface of said disc and ejected from a perimeter of said optical disc.

21. A buffing head for reconditioning a work surface of an optical disc comprising:

a rotary element for rotating said optical disc;

a buffing element configured to contact said work surface so that rotation of said disc enables corresponding movement of said buffing element; and

a well surrounding said buffing element, said well containing a fluid, and movement of said buffing element causes said buffing element to be immersed into said fluid and to be returned into contact with said work surface.

22. A buffing head as claimed in claim 21 wherein said buffing element comprises:

an axle; and

a roller mounted on said axle, said roller rotating about said axle in response to said rotation of said optical disc.

23. A buffing head as claimed in claim 21 further comprising a cover engaged with said well, said cover having an opening, and a portion of said buffing element extending through said opening.

24. A buffing head as claimed in claim 23 wherein an outer surface of said cover includes a cushion material.

25. A buffing head as claimed in claim 23 wherein said cover includes a guide for directing an escaped amount of said fluid back into said well.

26. A buffing head as claimed in claim 23 wherein said buffing element is selectively exposable through said opening.

27. A buffing head as claimed in claim 21 wherein said buffing element is a first buffing element and said buffing head further comprises a second buffing element surrounded by said well and configured to contact said work surface so that rotation of said disc enables corresponding movement of said second buffing element, and movement of said second buffing element causes said second buffing element to be immersed into said fluid and to be returned into contact with said work surface.

28. A buffing head as claimed in claim 21 wherein said buffing element is a first buffing element, said well is a first well, and said buffing head further comprises:

a second buffing element configured to contact said work surface so that rotation of said disc enables corresponding movement of said second buffing element; and

a second well surrounding said second buffing element, said second well containing a second fluid in communication with said second buffing element, and movement of said second buffing element causes said second buffing element to be immersed into said second fluid and to be returned into contact with said work surface.

29. A method of reconditioning a work surface of an optical disc utilizing a buffing head that includes a rotary element and a buffing element configured for restricted rotation relative to said rotary element, said method comprising:

retaining said optical disc on said rotary element in contact with said buffing element;

rotating said optical disc at a first speed via said rotary element, rotation of said optical disc enabling corresponding movement of said buffing element; and

restricting movement of said buffing element to a second speed to recondition said work surface, said second speed being slower than said first speed.

30. A method as claimed in claim 29 wherein said buffing element further includes a well containing a fluid, and said method further comprises:

immersing said buffing element into said fluid; and

returning said buffing element into contact with said work surface, said immersing and returning operations occurring in response to movement of said buffing element.

31. A method as claimed in claim 29 wherein said buffing element is a first buffing element, and said buffing head includes a second buffing element configured for restricted rotation relative to said rotary element, and said method further comprises positioning one of said first and second buffing elements into contact with said work surface.

32. A method as claimed in claim 29 wherein said buffing element is a first buffing element, and said buffing head includes a second buffing element configured for restricted rotation relative to said rotary element, and said method further comprises positioning both of said first and second buffing elements into contact with said work surface prior to said rotating operation.



33. A buffing head for reconditioning a work surface of an optical disc comprising:

- a rotary element having a spindle configured to receive a center section of said optical disc, said rotary element enabling rotation of said disc at a first speed;

- a first shaft axially aligned with and offset from said rotary element;

- a first buffing element coupled to and extending radially from said first shaft, said first buffing element being configured to selectively contact said work surface so that rotation of said disc enables corresponding movement of said first buffing element;

- a second shaft axially aligned with and offset from said rotary element; and

- a second buffing element coupled to and extending radially from said second shaft, said second buffing element being configured to selectively contact said work surface so that rotation of said disc enables corresponding movement of said second buffing element.

34. A buffing head as claimed in claim 33 wherein both of said first and second buffing elements are configured for concurrent contact with said work surface.

35. A buffing head as claimed in claim 33 wherein said buffing head further includes a third buffing element coupled to and extending radially from said first shaft, said first shaft selectively rotating to position one of said first and third buffing elements in contact with said work surface so that rotation of said disc enables corresponding movement of said one of said first and third buffing elements.

36. A buffing head as claimed in claim 33 further comprising a restrictor in communication with said first buffing element for restricting movement of said first buffing element such that said first buffing element moves at a second speed to recondition said work surface, said second speed being slower than said first speed.

37. A buffing head as claimed in claim 33 further comprising a well surrounding said first buffing element, said well containing a fluid in communication with said first buffing element.